



Comparison of Traffic Signals vs. Roundabout



		TRAFFIC SIGNALS	ROUNDBABOUT
Safety	Crash Frequency	Higher than a roundabout	Lower than a traffic signal
	Crash Severity	Higher due to higher speeds and higher speed differential	Lower due to lower speeds and lower speed differential. Elimination of high-speed T-bone (angle) crashes.
	Number of conflict points between vehicles	32	Reduced to 8
	Number of driver decisions.	Higher than a roundabout since drivers need to be aware of vehicles to the left, right and straight ahead.	Reduced since drivers only need to be aware of vehicles to their left at entry.
	Severity of driver errors	Higher due to higher speeds and larger speed differentials.	Reduced since overall speeds are lower and the relative differences in speeds are also lower.
	Traffic Calming	Not effective as a traffic calming measure.	Entering and circulating geometry constrains the speed to 18 – 30 mph. Geometrics ensure lower speeds.
Traffic Operations	Trucks (turning movements)	May encroach on adjacent lanes while turning	May encroach on adjacent lanes while turning. May require the use of the truck apron on the inside of the roundabout when making a left turn.
	Capacity	Constrained by green time in cycle length	Greater capacity than a traffic signal due to the high volume of vehicles traveling on WIS 172.
	Operational Benefits	More delay to all vehicles than a roundabout.	Less delay.
	Traffic Signing	Typical Intersection Signing	Same signing as signalized intersection except YIELD signs are used to control the traffic entering the roundabout.
	Traffic Speed	Not limited by geometrics. Speed on side roads, which previously had stop signs, will increase.	Geometric features ensure slow entering and circulating speeds. Speed is restrained to 18- 30 mph by the geometrics.
	User Familiarity	Drivers are very familiar with using intersections with separate left turn and right turn lanes.	Would be the 16 th , 17 th and 18 th roundabouts in Brown County. Currently there are 12 multi-lane roundabouts in Wisconsin.



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Right-of-Way Impacts	Overall	Typically requires additional area on the approaches to the intersection.	Typically require more area at the junction of the roadways but not as much area on the approaches
	WIS 54	No additional right-of-way required.	Right-of-way required in the northwest and southeast quadrants of the intersection.
	County GE	Right-of-way required along both sides of County GE	Right-of-way required along the west side of County GE
	Airport/Radisson Hotel Entrance	No additional right-of-way required.	Right-of-way required on the south side of WIS 172.
Community Impacts	Community Enhancements	Community enhancements are available on the perimeter of the intersection.	In addition to the perimeter the central island may be developed as a “gateway” to the community.
	Environmental Benefits	Increase in fuel consumption and emissions due to stopped and riding vehicles during red light phases.	Overall reduction in fuel consumption and vehicle emissions since delay at the intersection is reduced.
Cost	Maintenance	Signals are susceptible to care and trucks hitting them, power outages and malfunctions. Routine signal head repair, and replacement, loop repair, and maintenance required.	Pavement markings and landscaping. No impact on intersection due to power outages.
	WIS 54	\$500,000	\$650,000
	County GE	\$1,500,000	\$740,000
	Airport/Radisson Hotel Entrance	\$260,000	\$640,000

The source of the information in the table above which is non-project specific (i.e. generalizations between signals and roundabouts) can be found in “Roundabouts: An Information Guide:” published by the US Department of Transportation, Federal Highway Administration (FHWA Publication No. FHWA-RD-00-67).



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According to research done by the Insurance Institute for Highway Safety (www.iihs.org):

At locations where roundabouts have replaced stop signs and/or traffic signals:

- Crashes (23 locations studied)
 - Decreased 39%
 - Involving injuries decreased 76%
 - Involving fatalities and/or incapacitating injuries decreased 90%
- Vehicle delay was reduced by 62 – 74% resulting in (10 locations studied)
 - Saving 325,000 hours of motorists' time annually
 - Reduction in fuel consumption of 235,000 gallons annually
 - Environmental benefit of reduction in vehicle emissions
- Saved \$5,000 per year per intersection in electricity and maintenance costs

Public opinion in favor of or opposed to new roundabouts

PUBLIC OPINION ON ROUNDABOUT	BEFORE CONSTRUCTION	AFTER CONSTRUCTION
Strongly Favor	17%	26%
Somewhat Favor	19%	24%
Total in favor	36%	50%
Somewhat Oppose	19%	9%
Strongly Oppose	35%	26%
Total opposed	54%	36%
Don't Know	9%	14%

Two thirds of drivers over 65 years of age supported the roundabouts.

Active multi-lane roundabout locations in Wisconsin:

Sixth Street, city of Milwaukee (opened in 2002)
Canal Street & 25th Avenue, city of Milwaukee (opened in 2005)
WIS 78 and WIS 92, city of Mount Horeb (opened in 2005)
WIS 54/73 & 17th Avenue, city of Wisconsin Rapids (opened in 2004)
Canal Street & 25th Street, city of Milwaukee (opened in 2004)
WIS 30/Thompson Drive Interchange, city of Madison (two multi-lane roundabouts, opened in 2004)
WIS 35 Interchange, city of Hudson (two multi-lane roundabouts, opened in 2005)
Main Street @ County C, Mallard Drive and Thompson Road, city of Sun Prairie (opened in 2005)

Future multi-lane roundabout locations in Wisconsin:

WIS 32 & WIS 57, city of De Pere (construction in 2007)
Old WIS 12 and Parmenter, city of Middleton (construction in 2006)

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